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ABSTRACT

The literature on funding formulas for higher education is reviewed, and the historical roots of state higher education funding relationships is traced, including three 20th century budget reform movements that were the antecedents of formulas. Attention is directed to conditions that will affect funding of higher education and formula responses to these conditions, which include economic and demographic factors, technological change, organizational structure and climate, and changing goals. The approaches to formulas under changing conditions include definitions of formulas and distinctions among formulas, cost analysis procedures, tools for requesting funds, models, and budget components. The extent of formula use and the types of governance structures in which formula use is most prevalent are addressed, as well as models of governance and related formula types. A framework to choosing and analyzing a funding approach is suggested, with attention to organizational requisites, process requisites, technological and knowledge requisites, and attributes of alternative formula structures. The case of Michigan is discussed to illustrate a suggested method of changing the funding approach based upon the review of the literature and conditions affecting the state. (SW)

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State Financing of Higher Education Under Changing Conditions

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ABSTRACT

This paper provides a review of the literature on funding formulas for higher education. It traces the historical roots of state-higher education funding relationships, including a review of the three 20th Century budget reform movements which were the antecedents of formulas. It discusses conditions which will affect funding of higher education, and formula responses to those conditions. The approaches to formulas under changing conditions include definitions of formulas and distinctions among "formulas," "cost analysis procedures," tools for requesting funds, "models" and budget components. It also associates the extent of formula use and the types of governance structures in which formula use is most prevalent, as well as models of governance and related formula types. The paper suggests a framework to choosing and analyzing a funding approach through consideration of organizational requisites, process requisites, technological and knowledge requisites, and attributes of alternative formula structures. Finally, the case of Michigan is discussed to illustrate a suggested method of changing the funding approach based upon the review of the literature and conditions affecting the state.

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STATE - HIGHER EDUCATION RELATIONS:

AN HISTORICAL OVERVIEW

As our world changes an awareness of the past and its effects on the shaping of today's state-higher education relationships and funding approaches is helpful. Changes in this relationship evolved, each revision building on the strengths of previous efforts.

Early Higher Education

The roots of state-university relations reach to medieval times when, "In effect, what the king gave by charter the king could withdraw; the university had become an institution authorized by and obligated to the state" (Duryea, 1981 p. 16).

In America, this often delicate balance continued and was tested and refined as a uniquely American college and university system developed consisting of public and private, large and small with widely varied roles and missions and widely varied funding levels, sources, and approaches.

Funding and Governance Roots

While the financial position of the Colonial colleges was often precarious (Nelson, 1973), very little has been recorded about the specific approaches to budget planning in early higher education (Caruthers & Orwig, 1979). The major sources of funds were varied, including lotteries, gifts from generous benefactors, and tuition. Colonial and state government support was not regularized until after the Civil War. Keller (1983) noted:

> Though numerous states had created state universities after the early 1800s,...most public colleges and universities received little attention or money until the Morrill Land-Grant Act of 1862. Then, in the decades following the Civil War, most states began appropriating money to their state university and to the normal schools and teachers colleges that trained teachers for the boom in public school education (p. 7).

The precedent for regular state funding of higher education was set in Michigan with a statewide property tax for the University of Michigan in 1873. "This practice gave the institution a more stable income which allowed for better planning..." (Nelson, 1973 pp. 31-32).

By the beginning of the 20th century all but one state had established at least one public college or university, and 38 percent of all college students were enrolled in public institutions. Twenty years later over half of all college and university students were enrolled in public institutions (National Commission on the Financing of Postsecondary Education, 1973).

Enrollment growth and the establishment of new institutions by states coincided with the development of colleges and universities into complex organizations. They required new types of leadership, new methods of funding, and new areas of administration (Rudolph, 1962) In the eight decades after the Civil War thirteen states created single consolidated governing boards for higher education. Typically these were the states with fewer institutions, more limited fiscal resources and slower growth rates (Berdahl, 1971). From 1940 to 1980 the changes were even more dramatic. In 1940 33 of the states had

no statewide structure. In 1980 only three states (Delaware, Vermont and Wyoming) had no statewide structure. Statewide coordination of some kind had become more formalized, and "...coordinating boards, with their regulatory powers, have grown during the past forty years" (Mingle, Berdahl, & Peterson, 1981 p. 275).

Enrollment Growth

Enrollments in higher education grew dramatically during the 20th century, both as a proportion of the total population and in absolute numbers. In 1900 about four percent of the U.S. college-age population attended college. After 1945 the proportion increased steadily to one-half. In absolute numbers the baby boom generation pushed enrollments from two million in the late 1940s to over six million by 1966 (Berdahl, 1971). Enrollment growth in the 1970s was even more explosive, particularly in the first half of the decade. By 1981 enrollment had peaked at 12.4 million (Plisco, 1983).

Enrollment expansion was more rapid in public than in private institutions (Bowen, 1981). Expansion in the thirty years after 1950 was nearly eight-fold in public institutions compared with growth of two and a half times for private higher education institutions (Millett,1981).

Funding Growth

The growth of public spending on higher education during the 20th century has been impressive. From 1929-30 to 1975-76 total higher expenditures for all purposes increased at an

average annual rate of 9.6 percent. As impressive as this is, though, one must take care to compare apparent growth with real growth:

> Expenditures, when expressed per student and in constant dollars, increased on the average by only about 1.4 percent a year. This was still a formidable rate of growth (Bowen, 1981 p. 37).

The rate of increase in spending was not steady year after year. Rather, changes occurred in three stages: From 1929-30 to 1949-50 the average annual change in spending per student declined slightly (-0.40%). For the next twenty years, spending per student rose on average 3.21 percent. Average annual spending per student declined again slightly from 1969-70 through 1977-78 (-0.36%) Thus, "only during the golden years of the 1950s and 1960s did unit costs [i.e., spending] increase. They rose during this period precisely because society was willing to pour rapidly increasing resources into higher education." (Bowen, 1981 p 46).

Governance Changes

The character of the colleges and universities themselves changed in the post war years. Transformations of college and university missions and governance changes (including changes from private to public control in some cases) occurred during the period (Millett, 1984).

Coping with growth and change, at least some of which came about through states' initiatives (Peterson, 1976) was an issue for the state-university relationship. Creating the expectation that higher education was widely available wasn't enough.

Somehow the institutions' programs and their new roles had to be funded. State governments were more than a little reluctant to merely hand over whatever funds the colleges and universities requested. State governments had their own objectives. In fact, "...political leaders have always viewed higher education as a means to achieve some other end" (Andringa, 1980 p. 3). State goals for higher education in the 1950s, '60s, and '70s included providing access to college, expanding opportunity, and improving technical education (Millett, 1981). These goals were also a result of other forces in society, including an expanding workforce, national security threats (e.g., Sputnik), and changes in civil rights laws.

Budget Reform Movements-Formula Antecedents

State governments were also buffeted by a variety of other political forces, which in turn had direct or indirect effects of the state-higher education relationship. Among these forces were three distinct budget reform movements which have occurred during the twentieth century.

The first of these reform movements, the **Executive Budget Movement** transpired from about 1910 to 1935. During that time governors were granted greater control over their respective bureaucracies. Ohio was the first state to adopt a law giving the Governor power to prepare and submit a budget. By 1929 all states had a central budget office (Lee & Johnson, 1983). The movement's characteristics included a strong role for the executive branch accompanied by a high degree of centralized

control and an emphasis on management efficiency and control of waste (Caruthers & Orwig, 1979). While this movement had a strong effect on all other aspects of government budgeting, higher education was one of the last of the state-supported activities to be affected (Miller, 1964).

During this same period higher education was beginning the use of cost analysis procedures which were largely pioneered and advocated by John Dale Russell and Floyd Reeves in the late 1920s and early 1930s (Miller, 1964). These procedures were primarily for use within the institution, and did not permit ready comparisons among institutions.

The second major budget reform era stressed performance, emphasizing the effects of activities for which governments paid. In the era of **management orientation**, which lasted from the 1930s to the 1950s, concerns were focused on scientific management techniques such as work measurement and cost accounting (Caruthers & Orwig, 1979). During this time higher education institutions developed and accepted standardized classifications of financial accounts. These standardizations permitted comparisons among institutions and provided a basis for preparing or evaluating budgets (Miller, 1964).

The third stage followed on the heels of the Hoover Commissions' reports in the late 1940s and early 1950s. During the era, the emphasis in government budgeting was on the uses of the budget process for **planning**. One approach to budgeting during this era was Planning, Programming, and Budgeting System

(PPBS), which was introduced into the federal government by Secretary of Defense Robert McNamara in 1962 (Barber, 1979). PPBS spread through the state and local government bureaucracies in a variety of forms. By the mid-1970s the emphasis of the movement had changed from structural features of PPBS to using measurements of effectiveness and efficiency and program analysis (Lee & Johnson, 1983).

Lee and Johnson (1983 p. 103) noted that

> Efforts toward the installation of PPBS were particularly noteworthy in the field of education. Major universities across the nation showed evidence of change. The Western Interstate Commission on Higher Education (WICHE) had developed a budget and management information system based upon program structure. By the mid-1970s the WICHE taxonomy or variations of it had become standard for higher education institutions.

PPBS, program budgeting, and its cousins Zero-Base-Budgeting (ZBB) and Management By Objectives (MBO) have had their impacts largely through focusing government budget decisions on the expected results of spending. The advent of computers permitted greater analysis of entire systems of costs and alternatives (Keller, 1983). While such procedures may have been used within institutions for budgeting, states had mixed results in using such rational approaches. In Michigan, for example, the executive office used program budgeting but the legislature refused to examine the submissions in that form (Lee & Johnson, 1983).

Advent of Formulas

Formula budgeting is a concept which both encompasses the other rationalist approaches to budgeting and is more limited

than those approaches. Some formulas use aspects of systems analysis procedures common to PPBS and ZBB. But formulas are more limited in that they are concerned principally with determining amount and/or distribution of state funds to colleges and universities. Long (1980, p. 30) pointed out that "the formulas for providing funds to colleges and universities were convenience mechanisms to generate adequate funding at high levels of aggregation to meet the growth needs as forecasted or projected by academic planning." Formulas emerged at much the same time as PPBS and as such are a relatively new phenomenon, dating from 1950 (Miller, 1964; Moss & Gaither, 1976).

Early formula development activity coincided with the second of three post-war enrollment crises: 1951-53. In this three year period enrollments dropped as veterans completed schooling, but college requests for funds remained high. Another post-war enrollment crisis in 1957 coincided with a second period of formula development activity in several more states. By this time at least eleven states had adopted some sort of formula or formula-like procedure (Miller, 1964). The use of formulas "...increased during the seventies, particularly in the southern and midwestern states where funds were scarce and competition for these funds was fierce" (Moss & Gaither, 1976 p. 549).

Formulas were introduced for many reasons, especially in order to: (1) assure a minimal level of support; (2) treat all institutions alike; and (3) provide equity--the same funding for the same programs or conditions (Meisinger, 1976), (4) as part

of an evolution toward accountability in state budgeting ...." (Pickens, 1980 p. 1). Not only have formulas been used for accountability purposes, they have been used "to reduce the complexity by which public funds were allocated to meet, in an orderly manner, the needs of this unusual growth rate" (Long, 1980 p. 29). Glenny (1976) has noted that during the 1960s the large research universities generally objected to the use of formulas because they treated state colleges much the same as research universities. Now, however, with enrollment declines imminent, those same institutions are becoming advocates of formulas.

Although enrollment growth has largely ground to a halt, formulas and their use still elicit considerable interest among both institutional administrators and state officials. Present and future conditions for higher education differ from its foundations. But formulas and their use may both change with the conditions and remain largely the same as their origins. The experience of each state is unique, however, and the history, present conditions and future are all likely to vary from state to state.

CURRENT AND FUTURE CONDITIONS AFFECTING FUNDING OF HIGHER EDUCATION

Environmental conditions are changing rapidly as are their effects on higher education. The following is a summary of some of the changes that are most critical and a brief overview of their likely effects on funding.

Economic Conditions

Effects of the recession can still be felt: states' total funding capacities declined and priorities shifted (usually away from higher education) as the 1980s dawned (McGuire, 1978; Huff, 1979; Leslie, 1979; Andringa, 1980; and Furman, 1981). The most recent financial problems have been more severe than those in the 1960s because of the extended duration. While there are variances from state to state, most colleges have been left with a "legacy of deferred maintenance, lower faculty salaries (in real terms), and less organizational slack" (Brinkman, 1984a p. 28).

National trends demonstrate the effects of the recession. Funding growth slowed considerably in ten years. The average ten-year change minus inflation for all states between 1964-65 and 1974-75 was 152%. For the next ten year period (through 1984-85) spending grew 17% ("How the States Support Colleges," 1974 and "How the States Rank on 7 Scales," 1984). Each state and region differs as well because of varying economic and political climates. Michigan, for example, showed a ten year increase of 113% through 1974-75, but a 9% decrease over the next ten years. Furthermore, a majority of states showed tuition increases higher than the inflation rate during the past seven years (Halstead, 1985).

The nature of the economy is also changing: there are fewer jobs in industry and more in information and service sectors. Companies are moving away from urban centers and even out of the

U.S. (Edwards & Snyder, 1983). Shifting wealth and work away from these areas without equivalent replacements reduces tax bases and increases demands for other services and potentially alters demand for a states' college graduates. Pickens (1984, p. 2) stated, "public higher education should not expect permanent generosity from the states."

Federal funding has become an important source of support for higher education (Anderson, 1983). Shifts of outright cuts in any important federal programs will create pressures on states to fill the gaps.

Demographic Factors

There will be fewer people aged 18-21, the group that, according to the American Council on Education, constitutes nearly four-fifths of full time enrollments (1985). Between 1980 and 1990 that cohort will decline 15 to 20 percent nationwide (Mortimer & Tierney, 1979), but even more in the northeast and midwest (Keller, 1983). (See Appendix A.) The racial and ethnic makeup of this group is also changing to include more blacks and Hispanics (Glenny, 1979; Boyer,1981).

Projecting the college-going habits of the cohort is more difficult. Will they attend part-time or full-time; at age 18 or later; in which kinds of colleges; in which curricula; and with great or little fluctuation from year to year? Furthermore, who should do the forecasting? Clearly each institution must do its own, but state-level forecasting which corresponds to financing strategies should also be done (Wing, 1980).

The proportion of women going to college has increased. But because they take different courses and make different demands on the institutions than male students, they will require reallocations of resources within institutions (Glenny, 1979).

Adults, often thought to offer potential new markets for colleges, are unlikely to fill the empty spaces. Boyer (1981) pointed out the parallel colleges begun by industries, and Mortimer and Tierney (1979) found that participation by adults in tuition reimbursement programs has been minuscule. Their enrollments tend to be part-time, which results in different kinds and levels of costs (Hyde, 1982; Brinkman, 1985).

Technological Changes

New technologies will eliminate 15-20 million existing jobs before the turn of the century, but will also create 7 to 10 million new jobs (Edwards & Snyder, 1983). Students now enrolled in college have shifted to higher cost programs in technical and vocational areas, creating new financial problems for colleges (Hyde, 1982). Three immediate problems are (1) the number of faculty members is skewed away from the fields in which students are enrolled (Administrator, 1985), (2) increased average costs for those institutions with students enrolling in technical and vocational programs (Hyde, 1982), and (3) infusion of less well prepared students who require greater support services and more remediation and thus different costs.

Technology can also affect budgeting approaches and governance relationships. Technological changes in data and

information processing have made evaluation of formulas and other budgeting approaches easier (Brinkman, 1984b). But there are equipment and personnel costs associated with their use (Orwig & Caruthers, 1980). Centralization of information, including development of common definitions of data elements may also lead to centralization of authority (Purves & Glenny, 1976; Caruthers & Orwig, 1979).

Organizational Structure and Climate

A state's organizational structure and climate (the "political climate") can affect the amount of funding, the approach to its allocation, and institutions' flexibility to use appropriations.

Structure

The participants in state government activities have changed and so have their effects on higher education budget- ing. Perhaps the most significant change is that legislative staffs have increased in number, professionalism and influence (Glenny, 1976; Hale & Rawson, 1976; Caruthers & Orwig, 1979; Davis, 1984; and Wildavsky, 1984). Staff tend to add rational- ity to the decision process (Glenny, 1976). Miller (1964) and Glenny (1979) however, found that among all staff agencies, the governor's budget office was the most powerful. Each state differs, though, and those states with higher education policies that are dominated by one organization (whether legislature, postsecondary agency, or governor) had traditions or deliberate delegation that led to that domination (Allen, 1980).

The existence of a state higher education agency is the rule, and such agencies "occupy a critical position in the relationship between higher education and state governments" (Hines & Hartmark, 1980 p. 17). Together with other agencies of state government, state coordinating or governing agencies are increasing their control and the level of review over universities and colleges, particularly as funding declined (Hines & Hartmark, 1980). More recently there is evidence to suggest that there is a movement away from excessive state control and toward greater institutional autonomy (Jones, 1984a; Pickens, 1984).

Because each state's governance arrangements grew separately, it is difficult to predict on a national basis what will occur in the future. Jones (1984a) has suggested that the relationships between state governments and institutions have achieved reasonable stability, particularly with respect to the methods of requesting and allocating funds.

Climate

The climate in state government organizations can affect the size and method of appropriation. Those with a purely rational orientation employ ordered, logical steps: (1) identification of goals, (2) identification and analysis of goals and alternatives, and (3) choosing from among them (Lee & Johnson, 1983). As the economy produces conditions of sustained and substantial fiscal uncertainty or fiscal constraint, decision making tends to be concentrated at the top of the hierarchy and

to use rational calculation (e.g., formulas) as the basis (Morgan, 1984). One could assume, then, that one result of the recession might be an increased use of formulas, or at least a shift in organizational climate toward more rational approaches to budgeting. This may not be an improvement, because central decision making (which is a characteristic of rationalism) can simply be "an instrument for protecting historically inherited inequalities" (Lindblom, 1979 p. 523).

Another approach to decision making has been characterized as a political model (Tonn, 1980) or a pluralist process (Schick, 1969). Decisions are made not based on the merits of the proposal, but on the basis of who proposes it and who opposes it (Wildavsky, 1984). Incrementalism is a budgeting approach characteristic of this orientation (Lee & Johnson, 1983). Judgment and compromise are used because the "perfect knowledge" assumed by rational models does not exist (Tonn, 1980).

In reality what often exists is a blend of the two models. Leslie (1984, pp. 89-90) suggested that "...successful new strategies for resource allocation and budgeting will be heavily rational but also will be realistic in the political sense....Recent changes seem to represent a readjustment in the balance between political and apolitical forces." That is, a formula may be used, but the politics are taken care of before it's adopted (Jones, 1984a).

A thread running through some of the recent literature is a noted increase in demands for accountability, and a change in the nature of the demands away from the merely fiscal to programmatic and social (Caruthers & Orwig, 1979). The broadening of accountability concerns from the efficiency dimension, which can be more easily measured, to the effectiveness dimensions, which are more difficult to define and measure (Millard, 1979; Cameron, 1982), has cost implications, for example, requests for specific and detailed information (Hines & Hartmark, 1980) or mandating certain programs or actions which divert funds from core roles and missions (Bowen, 1981; Zemsky & Beckham, 1980; Boyer, 1981). But certain budgeting approaches may also intrude into substantive areas that have traditionally belonged to institutional decision-makers either by default or directly (Jones, 1978).

Changing Goals

The highest priorities of the sixties and seventies were access, equity, and adequacy of funding, but the goal for the eighties and beyond is excellence (Brinkman, 1984a; Folger, 1984). The addition of quality criteria will be difficult for many reasons: quality is difficult to define and measure (Wallhaus, 1980; Folger, 1984), responsibility for it is diffuse (Folger, 1984), "objectives will replace resources as <u>the</u> key to analysis" (Wildavsky, 1984 p. 181), its complexity may make it less politically attractive (Floyd, 1982; Banta & Fisher, 1984), and decision making may involve leaving the boundaries of the

organization to determine results or impacts (Lee & Johnson, 1983). The difficulties in dealing with access, equity, and adequacy of funding are still with us, however. Dealing with them will still be inhibited by policy problems and lack of technical ability.

Conclusion

This brief overview has hit only highlights of a rapidly changing environment. Each state and each system of colleges and universities will also face unique conditions. An awareness of the trends is more critical than ever for higher education and the states. Along with the message that higher education should not expect permanent generosity from the states should be the comment that funding approaches cannot be writ in stone (Hines & Hartmark, 1980); they must enable states and colleges to prepare for and deal with new needs and new pressures.

APPROACHES TO FORMULAS UNDER CHANGING CONDITIONS

The possible approaches that could be used in dealing with changing conditions and other issues are many and varied. They include approaches which differ in their fundamental philosophical bases as well as in their various components.

Formula Funding Defined

Just what is meant by "formulas"? In the classic definition "formula" refers:

> ...to an objective procedure for estimating the future budgetary requirements of a college or university

> through the manipulation of objective (quantitative) data about future programs, and the relationships between programs and costs, in such a way as to derive an estimate of future costs. A formula is typically applied uniformly to either (a) groups of comparable institutions such as "state colleges," or (b) comparable activities within a group of dissimilar institutions, such as "lower division liberal arts instruction," or "custodial services for classroom buildings" (Miller, 1964 p. 6).

Jones later commented on the definition and refined it:

> The formula funding approach develops a set of decision rules, sometimes simple, sometimes complex, which it reduces to quantitative form....As Meisinger (1975) notes, "the mathematical relationship central to the formula process is arrived at not by analysis of objective data or technical judgments alone but by analysis that is leavened by considerable amounts of negotiation and political agreement." (Jones, 1984b p. 43).

These authors have suggested that formulas describe relationships among organizations or activities in quantitative terms, and that judgments are involved in reaching agreement on those quantifications. Because there is not a commonly agreed-upon definition of formulas, it is important to note a number of distinctions.

One such distinction is between tools used for requesting funds (formula budgeting, guidelines, standards or indicators are words used to describe them) and those used for appropriating funds (formula funding [Michigan Department of Education-MDOE-1976; Purves and Glenny, 1976; Meisinger, 1976; and Gross, 1982). Tools used for requests are usually less rigid than formulas themselves and must be used in combination with other factors to construct and weigh budget requests (Meisinger, 1976). (In this paper, the process of appropriation or

allocation refers only to the state level distribution of funds to institutions.)

Another distinction can be made between **cost analysis procedures** and **formulas.** Formulas generally refer to the future and are used to establish future financial requirements of an institution or system (Hale & Rawson, 1976). Cost analysis procedures generally refer to the past and are aimed at measuring program and cost relationships already in existence (Miller, 1964). That is, "cost analysis measures the past; formulas estimate the future" (Miller, 1964 p. 6).

Another distinction can be made between a **model** and a **formula.** "Model" refers to a normative approach, and uses a variety of factors and comparisons to arrive at an estimate of the ideal size of the pie. A model may or may not determine how that pie should be split. "Formula" refers to approaches which allocate funds among the institutions in a state according to a variety of factors. For the remainder of the paper I will use "formula" as the generic term.

Still another distinction can be made regarding components of the budget that formulas cover. Jones (1984a) identified two categories of components: **multipurpose** (core, or general), and **single purpose** (special, categorical). The multipurpose component is the larger of the two and involves support for basic operations and programming. Several state purposes are tied closely to the budget's core: (1) access, (2) economic development, (3) maintenance and enhancement of the educational

system, and (4) efficiency (Jones, 1984a). The single purpose component may have several parts and may serve to emphasize any of the purposes of the core component or other purposes. Objectives related to the single purpose may: (1) be of shorter duration, (2) represent special priorities, or (3) be purposes served by only one or two institutions in a state (Jones, 1984a). Appropriations for either or both component may be formula based.

Consideration of two components of the budget is closely related to the concept of the budget base. Often in funding institutions the state will assume that the base (most closely tied to the core component) is inviolate, and will only scrutinize the size of the increment to the base or elements in the single purpose component. Items in the single purpose component (above the base) could be funded competitively or by categoricals such as the granting of program revision requests for institutions which are in accord with state goals.

Incremental Budgeting

Incremental budgeting is in fact a type of formula, which adjusts but does not refigure the budget base to reflect changing circumstances and gives nearly exclusive attention to the size of the incremental changes to that base (Jones, 1984b). Formulas and incremental budgets are similar in that: (1) both provide a framework needed for calculating budget requests, (2) both use the same factors for determining the size of the increment, (3) neither can force a state to spend

resources it doesn't have, (4) both can accommodate very different levels of detail, and (5) neither approach when used on the multipurpose component provides a good framework for accountability (Jones, 1984a).

Incrementalism is more in keeping with political reality than rational approaches: "Democracies change their policies almost entirely through incremental adjustments. Policy does not move in leaps and bounds." (Lindblom, 1959 p. 84). Incrementalism is also attractive because its use is technically easier, it causes less political conflict (Meisinger, 1976; Caruthers & Orwig, 1979), it is "incredibly practical" (Jones, 1984a p. 44), and it recognizes the time and information constraints on decision makers who can't evaluate all the relevant demands and resources (Meisinger, 1976). It is the prevailing practice in executive budgeting among state governments (Millett, 1984).

However similar formulas and incremental approaches are, there are still some differences, principally in their effects on the organization or the political context: (1) Formulas make ground rules explicit; (2) formulas stabilize distribution of resources among campuses; (3) using formulas year after year becomes largely a technical exercise, thereby removing politics except in the design phase; (4) incrementalism reduces uncertainty except for the determination of the size of the increment; and (5) incrementalism is more flexible in that

adding a new factor to a formula requires renegotiation of the entire contract (Jones, 1984a pp 56-7).

Extent of Formula Use Among States

"The lack of a commonly accepted definition of formulas and differences in terminology across states make it difficult to tell just how widely formula budgeting processes are used" (Caruthers & Orwig, 1979 p. 39). In the early 1980s, 21 states reported using formulas (Allen 1980, Gross 1982); 29 reported use of formulas or guidelines, and "states in the south used budget formulas to a greater extent that states in other regions of the country, and tended to use more formulas with more complex methodological foundations than did states in other sections of the United States" (McKeown, 1982 p. 300). Those not using formulas included five using program budgets, 13 using incremental budgeting, and one with a "complex hybrid" (Allen, 1980 p. 26).

Governance Structures and Formula Use

Governance patterns and state financing approaches are tied closely to each state's history. "Formula budgeting seems to have grown more often in states that have a larger number of somewhat similar institutions requiring state resources...."; Southern states with coordinating agencies used formulas to a greater extent than did Southern states which had consolidated governing boards (Southern Regional Education Board, 1978 p. 3). It is impossible to tell with the information available

whether the same tendency holds true across all states, although, Burnes, Palaich, McGuinness, and Flakus-Mosqueda (1983) noted that consolidated governing boards most often existed in states with less complex systems having smaller enrollments than those states with coordinating boards. In any case, "the large differences which existed among individual institutions and among individual state systems of higher education precluded the development of a single 'model' formula" (MDOE, 1976 p. 31).

Four Governance Models

Curry, Fischer and Jons (1982) described four models of state governance relationships with particular emphasis on financing, budgeting, and accountability. They are arranged along a continuum from greater state control to greater institutional autonomy.

The first is the **state agency model** which affords the state the most centralized control over higher education. All funds including tuition and investment income are appropriated by the state, and:

> Specific workload factors...serve as the basis for the level of the institutional request. Formulas might be used for similar functions within an institution such as instructional departments. However, specific support services probably would receive individual scrutiny and possible revision in the budget review process (Curry, et al., 1982 p. 12).

Formulas related to this model would be detailed and have specific allocation controls over institutional expenditures (Pickens, 1980). "States with detailed formulas whose

allocations are controlled by state officials...have compromised on the side of accountability and equity" (Pickens, 1980 p. 12).

Under the second model, the **State Controlled Institution** model (Jones, 1984a p. 26), only some institutionally collected funds are appropriated by the state; and formulas are used to determine at least half of the institution's state appropriation. The rest of state funding for the institution is determined on an incremental basis (Curry, et al., 1982). Formulas for this model are characterized by lack of detailed controls over the level and object of expenditures within program classifications, though the formulas themselves are detailed (Pickens, 1980).

Third, the **State-Aided Institution** model (Jones, 1984a p. 26) features more decentralization of control, including institutional retention and control of locally raised funds. Appropriations would be made on a lump sum basis, and determined by a general allocation formula which may incorporate some workload factors or generalized cost information (Curry, et al., 1982). Formulas for this model are much more general, based on per student amounts with state control only over the foundation level of expenditures which it chooses to support. "A state which adopts...[this] approach has compromised on the side of institutional autonomy and diversity" (Pickens, 1980 p. 12).

The fourth model is the **Corporate** or **Free Market** model. Institutions under this model have total control of all funds,

including authority to set tuition and fee levels. Budgeting under this model would be designed on the basis of a contract, with amounts for various activities based on an external index. Essentially, the state would be purchasing services from the institutions (Curry, et al., 1982). For a more complete discussion of the finance, budget and accountability systems under each of the models see appendix B.

Variations in Appropriations

Aside from formulas and governance structures, there is much variety in the ways in which states appropriate funds: by lump sum, either to the state higher education agency for distribution to the institutions, or from the legislature by lump sum to each institution, or through line-items or objects of expenditure (Pesci, 1979; Millett, 1984).

Changes In Formulas

Wildavsky has pointed out that the budget process is inextricably linked to the political process: "If the present budgetary process is rightly or wrongly deemed unsatisfactory, then one must alter in some respect the political system of which the budget is but an expression" (Wildavsky, 1984 p. 131). Since the governance structure for higher education is also closely linked to the political process, changes in any one of the three elements will affect the other two.

Changes in economic, demographic, and political forces may be the driving force behind changes in state-higher education

relations or funding approaches. Their specific effects on formulas as a whole or on portions of formulas are instructive.

Formula Responses to Economic Changes

Fiscal Stringency. Fiscal stringency, if not outright reductions in available funds are the order of the day. Formulas have been used not only for generating the institutions' appropriations but also for reducing them in at least two states (Bowen & Glenny, 1976). Another response to reduction is abandonment of the formula, at least temporarily, and employment of across-the-board cuts. The "ABC" tactic is used because of time constraints, because factors based on average costs place extraordinary stress on institutions when used for cutting, and because it's in keeping with a politically popular egalitarian mentality (Bowen & Glenny, 1976; Glenny, 1982; Moulton, 1983). A third approach has been termed the "get their attention" approach, in which cuts are made in areas which most adversely affect public interest (Moulton, 1983).

After initial economic shocks, institutions tend to look for more rational calculation models which seek lower cost ways to achieve similar benefits (Morgan, 1984). It is unclear whether states respond in the same manner. Michigan is apparently reviving its formula for community colleges and creating one for baccalaureate institutions at least partly as a result of the recent recession. Whether states should shift to rational models such as formulas depends on political and other factors. Keller (1983 p. 114) called incrementalism (which is

the principle non-rational approach) "unsuited for a period of drastic change and fiercer competition" because it is based on gradual change. Yet, states experiencing long-term fiscal stringency have been advised by Pickens (1980) to focus first on their priorities among various goals for higher education and then to reshape funding details.

When funding cuts are made institutions frequently experience far less slack within their budgets. Such practices as skimming (Meisinger, 1976) or set asides which were used to promote change or to deal with contingencies came to a halt during the recession (if the University of Michigan experience is any indication). Rigid formulas which are closely constructed to resemble reality might instead serve to lessen future flexibility-enhancing practices as set asides. One unfortunate consequence of state-level rigidity could be the loss of what Miller (1964 p. 168) described as "creativity and innovation [which] are 'marginal' activities and are...paid for from the 'overhead' of the regular teaching and research budget."

Adequacy. In times of fiscal stringency questions of adequacy become more urgent. Miller (1964) reported that formulas resulted in more adequate funding for all institutions, but that the claim is difficult to document because after the adoption of formulas, higher education funding increased due to other factors.

There are three approaches states use to determine need for funds: (1) comparisons of current and historical expenditure patterns within the state to find areas needing change, (2) comparisons with other states, and (3) development and use of standards or guidelines (i.e., models) which would assure appropriate support of higher education (Pesci, 1979). However, using models as a technique for determining adequacy should be done with care, because "chronic and substantive disparity between the formula's [i.e., model's] estimated needs and actual needs of an institution undermine acceptance of the formula" (Brinkman, 1984b p. 31). That is, it can become a wish list. Ultimately adequacy is left to the political system to determine (MDOE, 1976), or, as in the revenue theory of cost, "an institution's educational cost per student unit is determined by the revenues available for educational purposes." (Bowen, 1981 p. 17).

Economic Competitiveness. Economic considerations have also increased states' concerns about their competitive positions in the U.S. and world economies. Enhancing educational quality at all levels is one means of changing the odds in the competition for new jobs (The Path to Prosperity, 1984). Another response is shifting of resources within or among institutions to better reflect new needs.

Shifting Resources to Meet Changing Demands. As workforce changes occur with increasing rapidity, institutions will need increased flexibility to shift resources within instruction and

research areas. Funds to meet emerging priorities may come through shifts in funding, outright increases, or combinations of both. In times of fiscal stringency, the likelihood of outright increases from the state is reduced. New funds may be included within the formula or provided through non-formula categorical items (Spence & Weathersby, 1981). Funds provided through non-formula categoricals may in ensuing years continue to be funded in that manner, be folded into the base and funded along with the rest of the multipurpose component, or be funded as a one-time-only grant with nonstate sources left to provide continued funding. When providing such funds states may well ask for institutions to make trade-offs to direct increased institutional funds toward priorities on a matching basis. States have used increased program review (Smartt, 1984), outcome measures or performance criteria (Folger, 1984) or other regulations (Spence & Weathersby, 1981) to influence priorities.

Quality. State strategies to enhance quality may assume the same general form as other change strategies (new money with the formula, non-formula grants, or required trade-offs within institutional priorities). The major difference is the nature of the desired change: rather than doing more things, these new priorities require doing them better. The application of change strategies to enhancing quality is instructive, because, "What is new about some of the innovative financing plans that have been developed in recent years is that they include explicit

consideration of the incentives involved in a financing scheme...." The particular form such incentives take is highly dependent on the relationship between funder and recipient (Allen, 1984 p. 46).

Formal mechanisms for funding quality improvements appear to be relatively rare among states (Hyatt, 1983). This may largely be due to disagreements on standards for evaluating quality (Pickens, 1983) and the fact that many aspects of quality aren't quantifiable. Even so, there are methods for addressing quality. Three major approaches will be reviewed here.

Addressing quality through the formula can be accomplished by providing differential rates for certain institutions or for certain programs (Brinkman, 1984b). Added formula components which compensate for complexity of institutions are attempts to recognize that larger graduate research institutions with smaller classes and more expensive faculty and facilities require more resources than do smaller less complex institutions. The logic behind this suggests that there is a positive correlation between institutional cost and program quality (Moss & Gaither, 1976). This approach retains the same inputs only orientation that all formulas use, based on how much is done not how well (Pickens, 1980). A potential problem is that institutions can more easily divert resources to other needy programs and potentially erode commitment to the program (Folger, 1984).

A second approach is the one used by Tennessee. That state's "policy permits a college or university to earn an additional amount--up to 2% of its budget--based on its performance on five variables" (Bogue & Brown, 1982 p. 124). Once basic support for instructional and support activities is determined, categorical or competitive grants can be established for objectives such as quality (Jones, 1984a). Categoricals have the advantage of popularity for those institutions which can participate, they preserve institutional autonomy and responsibility for determining quality while still providing initiatives for enhancing quality. The disadvantages are that "substantial resources are required over several years for the effort to be effective and that political interest is often hard to sustain" (Folger, 1984 p. 10). In addition, competitive grants have the added problem of making winners and losers out of institutions by making them comparative (Eyler, 1984).

A third approach involves increasing review or regulation in order to shift resources within an institution toward activities more closely related to state goals. For example, program review required by or conducted by the state (Smartt, 1984) or peer review (Morgan, 1979). Smartt reported, however, that the history of statewide program review is young compared with practices already going on within institutions, and reallocations based on such reviews are largely determined at the institutional level not at the state level. Further, state reviews are primarily quantitative in nature, and reallocation

is more likely with qualitative reviews than with quantitative reviews. In the end, Smartt (1984) advocated more direct budget reform to provide incentives for quality improvement.

In any case, if a state chooses to use performance based funding the problems are enormous. Pickens (1980, p. 63) suggested four practical problems related to implementing a funding program to enhance quality: (1) consensus on standards is unlikely, (2) not all variables can be controlled by the institution, (3) "narrow definitions of performance may result in standardized measures which may prove narrowly conceived and deaden the enterprise," and (4) "...objective performance measures discount the numerous activities in higher education which, though not quantifiable, significantly enhance the quality of life." Certainly, such systems to enhance quality should not replace basic funding for institutional missions.

Formula Responses to Enrollment Changes

Enrollment is significant in higher education: the largest single component of institutions' expenditures is for instruction (Halstead, 1974). Correspondingly, student tuition and fees make up a large proportion of institutional revenues (Mortimer & Tierney, 1979). These two facts by themselves show that changes of any magnitude in student demand can make a difference in institutional revenue and expenditure patterns. State appropriations, whether based on formulas or some other approach, are often closely tied to enrollment. Some states are

loosening the bonds between their formulas and enrollment. The specific approaches include:

-**Decoupling**, which eliminates the connection, at least partially, for one or more segments of an overall formula; or bases the formula on units other than those directly related to enrollments or on other enrollment-related factors which may be more closely allied with actual costs (e.g., headcount rather than FTE students) (Spence, 1981; McKeown, 1982; Brinkman, 1984b).

-**Buffering**, which slows or limits the rate at which institutions would lose resources (McKeown, 1982; Jones, 1984a). There are two mechanisms used to insulate appropriations from enrollment declines: (1) lagged base year--providing a year or two between the year on which funded enrollments are based and the year of appropriation; a disadvantage for institutions with rising enrollments because funding is based on fewer students than are actually enrolled, and (2) averaged base--averaging enrollments over more than one year; which slows funding changes when enrollments move either up or down (Hyde, 1982).

-**Enrollment Corridors**, which allow enrollment fluctuations within a certain range without any budget adjustment (Hyde, 1982). This approach could perhaps best be used in a state having institutions which are growing while others are declining. **Enrollment ceilings** (Folger, 1984) are a variation of corridors.

-**Differential funding** by program and level, which can be used to deal with changes as students shift preferences (usually to more high cost programs) by providing appropriations to reflect increased costs (Hyde, 1982) directly related to enrollment shifts.

-**Marginal funding**, which provides funding based on the change in costs associated with producing one additional unit of output, for example, adding one more student to a class (Allen & Brinkman, 1983). In reality this does not loosen the ties between enrollments and funding; rather, these techniques can tighten the relationship (Spence & Weathersby, 1981).

"Costing techniques that generate this kind of information...have been used widely in the business community but have had only limited application in colleges and universities." (NACUBO-NCHEMS, 1980 p. 1). One reason for this is that unlike businesses, colleges have products or units of production that involve intangible attributes, and different production scales or mixes may require different input mixes (Hopkins & Massy, 1981; Allen & Brinkman, 1983). Furthermore, legislators have bought the concept of average cost, and selling them on the new concept, particularly one which is so technically difficult, will take time (Jones, 1984a).

Marginal costs cannot be calculated directly and must be estimated (Brinkman, 1984b). Three techniques for estimating are: (1) regression, (2) determining fixed and variable costs, and (3) determining incremental costs (Allen & Brinkman, 1983).

Several states have built estimated marginal costs into their formulas using approximations of one of the three methods. The most common appears to be specification of fixed costs through defining a core curriculum or a single course within a department or program as the base, and adding funds on a specified marginal basis for each additional unit of production (Pickens, 1980; Spence & Weathersby, 1981; Coulter & Rogers, 1980; Brinkman, 1984a). One difficulty with this approach is fluidity of program and course design which can either be defined and controlled directly by the state or can be more indirectly controlled through defining a range of reasonable costs (Van Wijk & Levine). Another approach that states are using is that of providing marginal adjustments in funding levels to enrollment changes such as decoupling or buffering (Brinkman, 1984a).

The literature contains many suggestions that equations using marginal costs are preferable, but their technical, practical and political problems limit their use and feasibility.

Formula Responses to Organizational Climate

The responses to the organizational climate are more subtle and varied and permeate the responses to other environmental conditions. One of the most direct ways in which the organizational climate affects formulas is in the choice to rely on a formula in the first place. A state whose leaders respect and are comfortable with rational methods may have a greater

tendency to use formulas. As has already been pointed out, there has been a blending of rational formulas into politically realistic tools. The increased number and professionalism of staff in legislatures and elsewhere in state government affords opportunities to develop and use rational methods and the data and information that accompanies them. However, "subjective judgment [still] prevails." (Hopkins & Massy, 1981 p. xxi).

Formulas in general have been reported to be increasingly complex. More complex formulas are more difficult to explain to political authorities and the public (Allen & Topping, 1979) but simpler approaches bear little resemblance to actual needs (MDOE, 1976). On the other hand, once developed and understood, formulas greatly simplify the budget process (Miller, 1964; Purves & Glenny, 1976).

Abandonment of formulas occurred in two states in the early 1970s due to organizational factors: "...erosion of trust and confidence in the budgetary formula(s) and a lack of responsiveness to state-level pressures for change." (Meisinger, 1976 p. 74). Another contributing factor to formula abandonment in Meisinger's study was disintegration of interorganizational communication.

Because it is not easy to get agreement on the rules of decision making, the usual procedure is not to carry out a fundamental reassessments of formulas, rather, there is mechanistic tinkering with them to keep the revenue flowing while still retaining political acceptability (Jones, 1984a).

Outright abandonment of agreed-upon rules occurs only in times of great stress (Meisinger, 1976).

Organizations or individuals adopt or adapt formulas for other reasons, such as: (1) professional interests of budget officers (staff) in developing rational models (Miller, 1964), (2) political interests of new leaders to improve the practices of predecessors (Millett, 1984), (3) interest in providing increased institutional autonomy (Van de Water, 1984), and (4) desire to improve institutional accountability (Moss & Gaither, 1976).

In any case, in agreeing to use a formula (or agreeing to adaptations to an existing formula) participants must have at least a tacit understanding that they must find consensus on formula assumptions and dimensions, i.e., the rules of the game (Miller, 1964; Glenny, 1976).

Formula Responses to Changing Goals

Two other goals not already mentioned for which formulas are used are improvement of equity among institutions and improvement of access for students.

Equity. Comparisons among institutions, a necessary precondition for determination of equity, can be greatly facilitated by using formulas and the cost analysis procedures that go with them (Miller, 1964). Equity should not be confused with equality, because "equity in the distribution of state appropriation requires differentiation according to program offerings and enrollments." (MDOE, 1976 p. 4).

Potential economies of scale contribute to differentiation between equity and equality. Cox (1980) found that formulas can recognize both economies of scale and diseconomies of complexity (that is, recognition that complexity of an organization can inhibit economies of scale).

Another concern is choosing the proper unit of analysis, whether a student credit hour, headcount, full time equated, (Enarson, 1979), gross square feet of building space (McClintock, 1980), or other units and whether they are correlated with actual costs. Yet another concern has to do with recognition of differences in costs due to intangible factors such as role and mission differences, other sources of income available, and variable production methods.

Access. Access to higher education is a rising concern as some individuals are priced out of higher education (Nelson, 1973; Spence & Weathersby, 1981). Tuition elasticity varies greatly by sector and type of institution, and tuition revenues will increase only through segmentation of prospective students by ability to pay and by offsetting it with student financial aid (Hyde, 1982). The notion of segmentation of prices is difficult to implement when legislatures provide support in relatively undifferentiated ways (Hoenack, 1982). In dealing with tuition revenue as it relates to the formula, Viehland, Kaufman, and Krauth (1981 p. 33) warned that:

> ...the use of a tuition index should be tied to a firm educational and social policy. The simplicity of using a tuition formula is illusory because it encompasses a wide range of issues and principles. To

> address some of these issues, state policy makers need to move beyond the view of tuition setting as only a fiscal matter. If a tuition index results from a careful discussion of its broad implications for finance and access, then it can become a highly appropriate vehicle for implementing state policy.

Controlling tuition is not the only means of influencing access. Student financial aid, provided directly to students to enable student choice among institutions, may be funded as a factor in a formula (for campus-based aid), provided directly to students, or a combination of both. In any case, such aid should be viewed as part of the total financing from a state for higher education so as to avoid putting pressure on institutions to raise tuition in order to maximize yields from financial aid (Merson & Qualls, 1979).

FRAMEWORK FOR CHOOSING AND ANALYZING A FUNDING APPROACH

Similar conditions and trends are operating all across the nation with respect to higher education finance. Yet each state has unique pressures and unique ways of responding (Miller, 1964). It appears that several are evaluating their funding approaches in light of current conditions (Brinkman, 1984b). Some consider complete overhauls, some borrow from other states and adapt the procedures to their own circumstances--a risky process at best (Miller, 1964; Hale & Rawson, 1976; Jones, 1984a)--most modify existing approaches and hope that they will last another year (Jones, 1984a). Whether considering a complete overhaul or modifications of an existing approach,

state decision makers should consider organizational, process, technological and knowledge, and function or use requisites.

Organizational Requisites

Participants

Change must have support of key leaders (Hipps, 1982; Peterson, 1982) and must benefit most or all of the major participants (Miller, 1964), including the governor, key legislators, the state higher education agency officials, and institutional officials.

Structure

Each state's structure will dictate the relative weight such actors' support merits in deciding whether to change the budgeting approach. In any case, sponsors of change must be respected (Peterson, 1982) and must have the ability to call upon organizational and technical resources needed to implement change.

Organizational Type

Decision makers are unlikely to choose a set of tools dissimilar to their organizational type. For example, those who already use systematic analysis of information are more likely to adopt a rationalistic approach to budgeting (Hines & Hartmark, 1980). Decision making types are associated with certain structures. For example, a rational approach is generally accompanied by formally designated offices and structures to carry out tasks pertaining to the budget, whereas a political approach generally has greater reliance on members

and leaders of interest groups (Peterson, 1980). A change from one type of budgetary approach to another may necessitate (or result in) a change in organizational structure (Meisinger, 1976; Wildavsky, 1984).

Process Requisites

Timing

Developing and implementing new budgeting approaches takes time, often several years (Miller, 1964; Meisinger, 1976; Pickens, 1983), and most begin modestly and evolve gradually (Meisinger, 1976; Joyner, 1981; Allen, 1984).

Change in organizational structures or problematic interorganizational relationships slow the development and implementation of changes. Timing also depends on the complexity of the approach chosen. A simple, limited approach generally goes into place more quickly than a complex or comprehensive one.

Participatory Development

The need for a high degree of congruence among formula users (Meisinger, 1976) including legislators (Purves & Glenny, 1976), necessitates users' involvement at all stages of development and implementation. Layzell (cited in Meisinger, 1976) noted that the committee which developed a formula in Illinois dealt with technical material in a highly political manner. The locus of decision making shifts from attention to the results to the development process and the objects of its review (Miller, 1964; Jones, 1984a).

Outcomes

The balance between technical versus political logic of outcomes is problematic (Brinkman, 1984b) because many formulas have been "developed by the analyst for the analyst, with little attention paid to the needs of the external user" (Monical & Schoenecker, 1980 p. 68). Legislators in particular have little time for dealing with detailed materials; a technically appropriate formula may be highly complex, limiting its communicability and hence its use (Wildavsky, 1984).

Technological and Knowledge Requisites

Technological Base

Retaining or altering the existing data base or developing a new one in order to generate adequate information is "usually the single task which consumes the most resources" (Poulton, 1974 p. 10).

Furthermore, formulas require a stable means of determining cost factors or workload measures (Purves & Glenny, 1976), thus once determined, a data base ought to have some permanence. In addition, there must be standard data definitions and procedures (Orwig & Caruthers, 1980; Collier, 1980).

Whether to use historical or projected data is an important decision. Historical data is more exact in many respects, but users are at the mercy of the way the data were recorded (Hopkins & Massy, 1981). The use of projected data is more in keeping with desires to look into the future which are becoming more necessary to survival and health of higher education

(Kirschling & Huckfeldt, 1980), but such data have their own limitations (Wing, 1980). Historical data are generally available within the higher education system; projections must rely to a greater degree upon sources external to higher education.

Data variables should be the same as or variations of those used by legislators in decision making (Monical & Schoenecker, 1980). They also ought to relate to the functional area to be funded (Miller, 1964; MDOE, 1976).

Knowledge Base

A common understanding of the strengths and limitations of various approaches is fundamental. Users of formulas should recognize that:

-Formulas offer "pseudo-objectivity" (Berdahl, 1971). Subjective decisions are made during the development process and they may "greatly affect the accuracy or validity of the data that eventually become an integral part of any formula" (Moss & Gaither, 1976 p. 549).

-State allocation procedures are not intended for detailed budgetary control at the institution level (Miller, 1964), though budgets do "provide a framework for accountability" (Jones, 1984a p. 16).

-Formulas permit more state inquiry (Morgan, 1979; Spence, 1981). The development of a data base provides new information and knowledge about interrelationships and operational

structures (Poulton, 1974), and alternatives (Miller, 1964; Poulton, 1974; Hopkins & Massy, 1981).

-Formulas permit more regularized decision making. After formulas are developed, the focus shifts to living with them (Jones, 1984a). Formulas can also provide information for budgeters about long-range impacts of conditions, thereby reducing their concerns (Meisinger, 1976).

-Even the best constructed formula may not deal adequately with underlying issues. It represents compromises among arrays of alternatives (Pickens, 1980), and even a carefully run simulation model only provides information about the consequences of implementing alternatives (Hale & Rawson, 1976), it cannot make the choices.

-Formulas increase state decision makers' confidence in higher education, either because of legitimacy of the formula itself or the popularity of a rational process (Arceneaux, 1981).

Formula Structure - Attributes of Alternatives

Formulas can be almost anything their designers and users want them to be. But their structures should be related to the users' goals (Poulton, 1974; Hale & Rawson, 1976; Hopkins & Massy, 1981). Structural dimensions and their attributes are described below. In any case, the extremes are presented and states should attempt to achieve a balance among the various dimensions to achieve the purposes it desires:

Simple or Complex

A simple formula has fewer calculations, is easier to construct, faster and cheaper to implement and uses a highly aggregated set of data. A simple formula has the advantage of being easier to communicate its inputs and impacts. A simple formula is less exact as a replica of reality because its data base may involve comparing non comparable items (Orwig & Caruthers, 1980). It may also be highly inaccurate. It offers a greater degree of institutional flexibility, and may not produce false or irrelevant incentives to as great a degree (i.e., inducements to carry out only those activities which are recognized by a formula and neglecting others).

Limited or Comprehensive Scope

A limited formula covers only some functions of higher education, or only a portion of the budget such as the special purpose components only. Limited formulas use fewer calculations, may be simpler, and also faster and cheaper to implement. They may offer greater institutional flexibility in that fewer data elements must be reported, and there is less likelihood of attempting to quantify intangibles. The corresponding scope of review related to a limited formula also is smaller, thereby inviting less state intervention into internal operations of institutions. However, a limited formula may also be less stable because it requires yearly reconsideration of large sized and potentially important non-formula items.

Inclusiveness

Whether to include all higher education sectors or only those with institutions most similar to one another is an important decision depending to a great extent on the structure and size of a state's system. Formulas have traditionally been used most often in states whose institutions are similar to one another. Inclusion of dissimilar institutions creates complexity as formulas deal with dissimilar elements in ways which recognize their lack of similarity, for example, by creating differentiations among disciplines and levels of instruction. Equity is more difficult to achieve when dissimilar institutions are put into the same formula mechanism. A rigidly imposed formula may result in a loss of diversity (doing different things) or a levelling effect (doing things differently) (Carnegie Foundation, 1982).

Modeling or Allocating

The primary motive for using a model is to define adequacy. It relies on normative data such as comparisons with other states, other groups of institutions, or market prices. A model requires a data base which relies to a greater extent on sources outside the state or outside the higher education context. A model is useful in defining a minimum level of support, but no model or formula can force a state to spend money it does not have. Models that are "too rich" lose credibility with state government leaders.

The primary motive for using an allocation device is to divide existing resources in an equitable fashion. It may not rely as heavily on data from outside of higher education. It does rely upon data which permits comparisons among institutions.

Dealing With Enrollment Changes

Formulas have been traditionally based on enrollments, and may create incentives to recruit students simply to increase resources (Bolte & Coleman, 1984; Brinkman, 1984a), not to increase quality or meet real needs (Pickens, 1983; "Study Group on the Conditions. . .," 1984). Several methods are useful in decreasing the degree of reliance on enrollment as the basis for funding: decoupling, buffering, enrollment corridors or ceilings, differential funding and marginal costing techniques. All were discussed previously. The critical decision about which (if any) technique to use depends upon the goals of the state and institutions. One goal is protection of the institutions' cores; that is, "can the formula maintain the mission and quality of institutions at lower enrollment levels?" (Pickens, 1980 p. 18). Some activities are associated primarily with enrollment base (e.g., instruction, student services), and others are less closely associated with enrollment (e.g., libraries, physical plant operation, and research and public service). Any funding approach must be able to differentiate sufficiently among these items. The choice of a technique and its base variables is most probably a matter for

negotiation between the states and their institutions in the development of a formula or other approach. The degree of reliance on exact costing versus estimation of factors is also a point of negotiation; exactness increases the complexity, and presumably the comprehensiveness of the formula. Appendix C contains charts which show formula calculation of functional areas, and base factors used in their calculation by various states.

Dealing With Conditions of Fiscal Stringency

Budget cuts put a great deal of pressure on the formula (Mortimer & Taylor, 1984). Formulas used during growth are inadequate during decline (Henderson, 1978). The mere existence of a formula may have helped focus attention on priorities, and increasing communication with the institutions, thereby making it possible that cuts required by the state will be less arbitrary. The entire basis of decision making shifts, however, when conditions change to decline. At the same time, states must sharpen their priorities for funding and increase the amount of institutional flexibility to manage more creatively. Whether that is accomplished through a formula or another approach, a new approach must be carried out with attention to factors other than fiscal targets (Mortimer & Taylor, 1984). State officials' respect for budgeting as an art rather than pure science must increase during such times. While it is not clear from the literature whether formulas can be successfully used during periods of decline, it is clear that if they are

used, they must differ from those used during growth periods. It is also clear that questions of adequacy and questions of equity take on new urgency.

Conclusion

The choice of a new budgeting approach depends to a great extent on the problem that is to be solved. Once decision makers have a clear idea of the problem, the choices among alternatives become clearer. Formulas are tools. Whether to use a formula or another tool such as incrementalism decision makers' awareness of the tool, facility in using such a tool, and whether the specific tool fits their goals and objectives.

THE CHOICES FOR MICHIGAN

State Higher Education Environment

Organizational Environment

Budgeting for state colleges and universities is characterized by considerable autonomy for Michigan's colleges and universities. Beginning in 1850 when Michigan established constitutional status for higher education (Dunbar, 1963; Glenny & Dalglish, 1973) this status has been expanded and reinforced numerous times since (Henderson, 1967; Faverman, 1975; Whims, 1982). As a result of the institutions' legal status, the role of the State Board of Education in the budget process is, at best, ambiguous (Glenny, Bowen, Meisinger, Morgan, Purves & Schmidtlein, 1975). The Governor's budget office and the Legislature and their fiscal agencies play strong roles in data

gathering, analysis, and decision making regarding appropriations to institutions. Funds are appropriated in lump sums to each institution.

Economic Environment

Michigan is hit exceptionally hard by national recessions. As a result of the recent recession, funding for all of higher education lost ground in the early 1980s, after starting from a position behind those of other states. Its growth in appropriations was slower than the national average, both during the 1960s and during the 1970s (National Association of State Universities and Land Grant Colleges, 1970; "Analysis of State Funds for Higher Education" 1980). From 1977 through the present, appropriations per student adjusted for inflation fell, both as a result of reduced appropriations and somewhat increased enrollments in all of higher education (Presidents Council State Colleges and Universities, 1983; Verway, 1984; Halstead, 1985; Senate Fiscal Agency, 1985).

When compared with other states on appropriations per $1,000 of personal income, Michigan does not fare well. When compared with the twelve major industrial states, Michigan ranked 5th (33rd nationally) for 1984-85. In order to be ranked among the upper third of those states, Michigan would have to increase its funding by 6.3% (26.2% to be ranked in the top third nationally), to be ranked first among those states it would have to increase its funding by 33.2% (109.6% to be ranked first nationally) (Reinhart, 1985).

Public higher education's share of the state's tax revenues fell from 8.6% in 1977-78 to 7.4% in 1984-85, while the average share nationally increased from 8.7% to 8.9% (Halstead, 1985).

Enrollments

In recent years enrollments declined in some institutions but increased in others. It is likely, however, that enrollments overall will decline between now and 2000 (Moor, 1979; MDOE, 1984a; Governor's Commission on the Future of Higher Education [GCFHE], 1983). At best, enrollment levels will remain stable, but will depend to a great extent upon increasing the college going rate of the traditional cohort and upon recruitment of out of state and nontraditional students. The number of Michiganians aged 15 to 24 years old is expected to decline by more than 20% by 1990 compared with 1980 (National Conference of State Legislatures, 1982). Enrollment projections on a statewide basis are largely guesswork as Michigan does not have a state level mechanism for projecting enrollments.

Enrollment changes varied both in degree and in direction among public four year institutions. From 1976 to 1984, headcount in all 15 dropped 4.6%. The smallest institutions (less than 7,000 headcount) experienced growth ranging from 8.6% at Michigan Tech to a phenomenal 51.9% at U of M-Flint. The "Big Three" all lost enrollments, with Wayne State losing most (16.5%) and U of M least (6.5%) (MDOE, 1984a). Fluctuations among institutions may be explained by many factors, including

institutions' admissions policies, student choices and competition from other higher education sectors.

Tuition

Tuition rates are of great concern in Michigan higher education. Average tuition at state colleges and universities increased well beyond the rate of inflation between 1977-78 and the present. The cost burden of education has steadily shifted to students and their families. In 1984-85, state funds accounted for 59% of the education and general funds of the state colleges and universities, but in 1977-78, state appropriations accounted for 64.1%. Most of the remaining 41% came from tuition and fees, compared with 35.9% in 1977-78 (Bossard & Murphy, 1979).

Students' abilities to shoulder the burden depends upon family income and cost offsets such as financial aid. In 1982-83 (the latest year for which figures are available), the gap between available financial aid and cost of attending a state college or university was $27.5 million, or approximately $289 per needy student. This is an increase of 90% from 1974 (MDOE, 1984b). Empirical evidence and political evidence indicate a need for change.

Public Opinion

Michiganians value college education very highly; nearly three fourths of Michigan adults said a college education is very important, compared with 58% of adults nationwide (MDOE, 1984c). Furthermore, a large majority of adults feel positively

about the overall quality of higher education in Michigan. Michiganians have definite opinions about priorities for spending within higher education as a means to achieve goals. For example, projects which improve the state's economy, hiring and keeping good faculty, freezing tuition, and providing financial aid are areas in which spending should be increased according to the survey respondents (Magid, 1984). There were no questions asked about specific funding approaches.

Impetus for Change

The final report of the Governor's Commission on the Future of Higher Education (1984) recommended development and use of allocation formulas for both community colleges and the state colleges and universities. Previous study commissions have also recommended use of formulas or at least use of uniform financial accounting and reporting procedures (Russell, 1958; Citizens Committee, 1965).

The Legislature in its 1984-85 budget called for a task force to revise its funding approach for state colleges and universities and provided $45,000 to fund the effort (Public Act 238 of 1984, Sec. 4). The task force, composed of presidentially-designated representatives from each of the 15 state colleges and universities, and chaired jointly by representatives from the Senate and House Fiscal Agencies and the Department of Management and Budget, is expected to complete its report by mid-November.

Funding Approaches for Higher Education in Michigan: Past and Present

Michigan depends heavily upon political negotiation to determine the size of the budget for state colleges and universities and its distribution among institutions (Whims, 1982). Funds are appropriated in lump sums to each institution.

Michigan's involvement with rationalist approaches is limited and relatively recent with respect to appropriating funds for the state colleges and universities. Beginning in 1973 Legislative staff began studying the use of systematic models for development of higher education appropriations. Early efforts were halted until computer capacity was improved, a common data base was developed, and a method for assessing needs of institutions and programs was determined. Actual development of a funding model began in 1975, and the first model (called the Owen-Huffman Investment Needs Model) was submitted to the Legislature in February 1976. For each of three years thereafter a task force was convened to review and recommend refinements to the model (Bossard & Murphy, 1979).

Fiscal year 1979-80 was the last time either a model or a formula was used in any significant manner. The onset of the recession is generally given as the reason for abandoning these approaches. During the recession an across-the-board incremental (or decremental) approach was used to allocate funds to the state colleges and universities. Little or no attempt was made to differentiate among institutions or activities. The base for the increment (or decrement) was the previous year's

appropriation. With the submission of his 1984-85 Executive Budget Recommendation, Governor Blanchard changed all that. In his recommendation, the "Big Three" universities would receive a larger percentage increase because of their research contributions to the state (Blanchard, 1984). The Legislature modified this approach as it adopted the budget, but it was clear that the recession was over and that across-the-board increments would no longer be the only means of allocating funds for higher education.

With the return of comparatively good times, higher education institutions are clambering for their own economic recovery. During the recession it was somewhat easier to point to empty state coffers and ask institutions to share the burden. Different reasons are offered now for the state's inability to proffer complete recovery to the institutions. A pending income tax reduction, a looming economic downturn, and other pressing concerns for use of state tax dollars compete for funds with the state colleges and universities. Other demands threaten to cut into higher education's share of the pie even more than they already have. Even if their share is maintained, there is concern that limited funds won't stretch to meet all needs expressed by higher education. And, there is concern that funding is inequitable for those institutions which have had enrollment changes greatly different than average, or which have other sources of funds more readily available to fill funding

gaps left by limited appropriations. Clearly some priorities must be established for distribution of funds.

For the past two budget cycles (for fiscal year 1984-85 and 1985-86) the Legislature's approach has been more complex than simple across-the-board increments to the previous appropriation. Essentially, funding amounts are built by adding several factors for all institutions: an increment based on previous year appropriated amounts to recognize inflation increases, an increment based on previous year appropriation plus tuition revenue to help stabilize tuition, and various special purpose funds such as phasing in of new facilities operations, increases for purchase of new equipment based on proportion of budget spent on instruction, and recognition of program revision requests. Special categorical funding was provided in the form of the Research Excellence Fund for the 1985-86 year.

It is, in effect, a formula. It is simple, limited in depth of review, reliant on objective, highly aggregated data, and permits a high degree of institutional flexibility. It is, however, unstable, in that the decision factors can change radically from year to year. In addition, it does not address issues of adequacy of total funding nor of equitable distribution, nor does it truly address issues of access on the part of students. Similarly, it fails as a means of carrying through on true state priorities aside from the provision of additional funds on a categorical basis. Finally, there is

little concern for the preservation of economic position when the next recession hits the state, expected sometime in mid- to late-1986 (Verway, 1985). There are other issues as well related to the funding approach. Following is a discussion of the key issues.

Issues

Lack of Information Base

The information base which exists with respect to state colleges and universities is scattered through many offices and consists of highly aggregated data. There are at least four problems that this causes:

First, there is little basis on which to judge the results of funding (outcomes) or the consequences of not funding in a particular manner. Certainly we know how many students are enrolled by broad program categories, and tuition, appropriations and other income levels. However, we have little knowledge, aside from tracking documents and audit reports, of the interrelationships of the various programs, the strengths and weaknesses of the institutions, and have little or no basis to judge "need" of institutions for funds aside from institutional requests.

Second, we have little other than highly aggregated data on which to determine equity of funding because there are no benchmarks for comparing one program's costs to others within the state, nor with programs of similar institutions across the nation. Several, if not most, of the institutions in Michigan

compete in a national market for students, faculty, funds, and purchases. As enrollments rise in some institutions and fall in others, the amount of funding per student on a simple average basis changes. Is this enough information to determine whether a student at college X is getting a fair shake compared with a student at college Y? Furthermore, we know that the fifteen institutions have vastly differing roles and missions. Institutional decision making is based to a large degree on its leaders' sense of role and mission and the fit of program changes with that role and mission. This affects the amount of resources each institution chooses to put behind each of its programs, thereby complicating measurement of equity. Furthermore, institutional decisions to cap enrollments or to fling the doors open to all comers affect the number of students who enroll. To what extent is it the state's responsibility to fund every new student; correspondingly, what is the state's responsibility for providing a base level of support as enrollments drop?

Third, we know very little about prospects for future enrollments across all institutions. Each institution reports that it is optimistic about retaining its market share, yet there is little knowledge of what to expect across all institutions as the primary college age cohort grows smaller. Should funding levels be reduced? By how much? We simply have no way to judge. Yet citizens and other legislators will want to know why it is that funding levels don't go down as the

number of students goes down. We must be prepared with cost information and knowledge of core programs and fixed costs. We also need to have some knowledge of student behavior and choices to help in determining how to target funds for improvement of access for low- and moderate-income students, and for special underserved groups such as blacks, Hispanics and handicappers. Should such funds be provided to the institutions directly, or to students? In what form should the funds be provided: as scholarships, grants, loans, incentive funds, and so on?

Fourth, we have little basis on which to plan the various programs that may be needed by institutions in order to meet future instruction, public service and research demands. For example, how can we judge whether to provide funding for yet another engineering school, or for more teacher training? The Presidents Council of State Colleges and Universities has a voluntary program review and approval process on which the Legislature has relied in the past. Is it adequate for the future? Are there other sources of information which state officials can and should use to guide decision making on such matters?

Economic Recovery

Another grave concern is the widely fluctuating Michigan economy. Like the weather, it is highly changeable. Its swings can be drastic and harmful to continued funding of higher education programs. We already know that buildings have fallen into disrepair, much instructional and research equipment is

antiquated, and that top scholars are leaving. Repair and replacement costs are likely to be enormous for those items alone. Yet weathering future economic storms may depend to an increasing degree upon the ability of higher education to respond with research, job-training instruction, and public service. If funding levels fluctuate greatly as well, institutional planning is inhibited and response time for meeting new demands is slowed. In short, the institutions must be able to undergo their own economic recovery in order to prepare for the next downturn.

Funding Stability

Not only do funding levels change, but the method by which they are calculated changes from year to year. Again, institutions need stability and greater lead time for planning to meet changing demands. In comparatively good times, increased funding based on new factors may not be so harmful. However, in times of fiscal stringency, predictability will be needed more than ever.

Balance of State and Institutional Goals

Overriding all of these concerns is the nature of Michigan's governance system. Michigan's institutions are so highly autonomous as to be almost private. On the Curry, Fischer, Jons scale, the governance structure is almost that of a corporate model. The fact that base support is provided for the institutions, however, places the governance structure back into the state-aided institution model. Any new funding

approach must be sensitive to the high degree of autonomy as it is unlikely to change, and it has served well in the past. Threats to autonomy are also only likely to promote distrust and lack of cooperation from institutions rather than positive changes. Thus, it is critical that any proposed changes be developed in concert with the institutions.

Recommendations for Michigan's Funding Approach

1. Adequacy. Michigan must develop a model of adequate funding for higher education. It should employ benchmarks for comparison which are reasonably accurate though based on variables currently in common use. It should be achievable in that spending levels recommended will fit Michigan's ability to pay. Furthermore, it should be periodically reassessed as enrollments drop and other conditions change.

Comment: "Adequacy" is ultimately a political decision. Arguments over whether X% increase is better than Y% increase have little merit without some points of comparison. Because Michigan competes in both national and international markets with respect to higher education and other services (like job creation), knowledge of support levels for similar institutions is critical if we are to judge whether we're spending enough, too much, or too little. Fact finding of a sort which will help determine how Michigan higher education compares is needed so that Legislators can make decisions about how far Michigan can go toward meeting its competition.

Strategy: Work is already underway. The higher education funding formula task force is gathering and analyzing data. It is employing NCHEMS classifications of institutions from which to draw peer groupings for comparisons. Furthermore, it is

planning to recommend levels of adequacy which will put Michigan institutions at the seventy-fifth percentile of national norms. It may be that some institutions are already at the 70th, while others are at the 60th percentile ranks. Differentiation of funding increases can be justified by providing additional funds for those institutions which are farther away from the benchmark goal.

A difficulty in this approach is similar to the difficulties experienced previously in using the Owen-Huffman Model (which when last used in 1979-80 would have required a 15% increase to reach full funding, an amount well beyond Michigan's capabilities to fund at that time - PCSCU, 1983): it could be that the funding required to reach even the 75th percentile is too great and that decision makers will lose confidence in the value of the model. If this is the case, our sights may have to reduced. Abandoning the modelling approach would only serve to continue the problems.

Finally, the task force, or another body, should be reconvened in mid-1986 to assess the model that was developed, and to set about the task of defining appropriate means of dealing with fixed and variable costs in light of changing enrollments.

Cost Estimates: Cost estimates are premature, but some guesses have been put forth by the Senate ($300 million plus inflation) and the Department of Management and Budget ($50 million).

2. Equity. Michigan must develop a means of measuring equity among institutions. It must be possible to assure that a student will get a "fair shake" at any institution in a core program, while also taking into account differences in role and mission which reflect different levels of spending for similar programs.

Comment: Currently the only basis on which legislators can determine equity is total appropriations to each institution. There are large differences among institutions in per-student funding levels. Such differences may be a result of role and mission differences (e.g., one institution may have a tradition of liberal arts and has greater resources devoted to instruction in that area than another would). Other differences have to do with differences in faculty salaries, which make up the largest element of instructional costs, and use of faculty time. For example, one institution may require a faculty teaching load of 12 hours per semester while another requires three, with greater expectations for research productivity. It is easy to see that comparisons among institutions cannot be simply made, yet it is hardly fair to continue appropriating funds in the same manner when students may be slighted.

Strategy: As with the previous recommendation, much of the data gathering has begun. Benchmarks with which to compare funding based upon program-by-program breakouts among similar institutions will help Legislators determine equity in a more accurate manner than is currently possible, and to use that as a basis for differentiated funding levels. Such funding should be determined on the basis of an allocation formula which is

designed to bring all institutions into line with the goal of seventy-fifth percentile ranking over a multi-year period.

Key Legislators, however, must guide the funding formula task force work to assure that the results are not so complex as to be barely usable. Legislators should request and receive periodic reports of progress and explanations of issues from the task force. This will permit Legislators to understand the results and to redirect efforts that may produce needlessly complex material.

There are already several important concerns which have surfaced and which promise to undermine the results. One issue is the type of grouping into which certain institutions are placed under the NCHEMS classification structure. One large institution has expressed doubts that the category into which it falls will provide a fair comparison. That institution would clearly prefer to be placed in a category which it views as more prestigious. The classification structure was developed by and independent group (NCHEMS) and attempts to group some 3,000 institutions into similar categories from which comparisons can be made. There is a level of objectivity in the classification structure. Legislators must be aware of this as a looming issue and be prepared to deal with it. I recommend that the categories continue as NCHEMS developed them. I further recommend that judgements be withheld until the data are produced, and it can be discerned whether or not the level of funding proposed based upon the current category is

realistically attainable, surpassed already, or out of reach entirely. Finally, lack of agreement by one institution should not be permitted to undermine the entire process; it should instead be a basis for reaching a compromise, perhaps by "sweetening the pot" in some other area.

A second critical issue, potentially more damaging than the first, relates to the appropriateness of relying on broad categories of costs as a basis for comparison. This does not account for intangible factors which may be related to complexity of the institution or different workload demands for faculty. For example, one institution may require faculty members to teach an average of 12 hours per semester, while another requires an average load of six. Yet the institutions' instructional costs may be different not only because of teaching load but also because included in the cost of instruction is the cost of research which faculty members are also expected to perform. There are at least two ways of handling this. One (the one I recommend) would be to build in a differential for complex organizations to increase the comparative cost factor to better reflect current spending and perhaps to account for intangibles. Another would be to conduct a faculty activity analysis in order to provide a more detailed basis for comparing actual costs of instruction with those more closely associated with research and public service. The second entails special problems related to faulty tools for such assessment (Gonyea, 1980) and problems related to potential

misunderstanding of results, mistrust by those reporting that the information will be properly understood and used, and the sheer volume of work involved with collecting and processing such data.

Cost Estimate: Probably will not require additional funds, rather it will address distribution of funds.

3. Data Base. Michigan must develop a data base which consolidates information at the state level on higher education programs, funding levels, enrollments, and comparisons with other states. Its principle use should be for support of the model but it should also permit projections to be made regarding enrollment levels, future funding needs, and need for program changes. The Legislature, institutions, and DMB should all have ready access to the data base, and should all be involved in its development. The Department of Education should have primary responsibility for its development and maintenance.

Comment: The lack of information on which to base decisions can result in poor decisions. That is, problems of adequacy, equity, access, and appropriateness of programs are not addressed. The discussion in the previous section on issues illustrates some of these difficulties. The lack of a data base leaves Legislators to be treated like mushrooms: kept in the dark and fed horse manure.

Strategy: Start up funds have been appropriated to the Department of Education for such a project. While a data base can be highly technical, it must always be useful to decision makers. Therefore, a task force composed of institutional representatives, Legislators and their staff, and executive branch staff should guide the Department of Education in the development of the data base. Such representatives should

include both those with technical expertise as well as potential users of the information.

Cost Estimate: $100,000 has been appropriated for start up. Future estimates will be developed later.

4. Funding Stability. Legislators and the Governor should agree in principle on the need for stability in funding decision making. The basis for funding decisions should remain stable from year to year, either through reliance upon the model being developed (with a multi-year plan to fully fund the model), or through partial reliance on the model and partial reliance on an incremental system.

Comment: The discussion presented previously provides an indication of the need the institutions have for stability in order to prepare for an uncertain future. If the decisions each year include not only the size of the increment but the base upon which it is to be applied, the institutions must spend a great deal of time and energy on negotiations with the legislature rather than working on the business of educating students and providing research to benefit the state and nation. It also complicates life for Legislators who must attend to new basic decisions each year as well as making decisions about any new directions it wishes to take in funding state colleges and universities.

Strategy: The leadership of the House and the Appropriations Committee should assign at least one member of the Appropriations Subcommittee on Higher Education the responsibility for overseeing the process of development of a funding model. He or she should be someone who has both the technical understanding as well as the political awareness of

the needs of other members of the subcommittee and of the full House. He or she should serve as a conduit of information between the full Appropriations Committees' members and the task force as to needs and uses of information.

5. Access. Michigan must address issues of access to higher education over a multi-year period, both within and outside of the funding model.

Comment: In the past budget cycle Michigan made great progress toward closing the gap between available financial aid and need. But it went no farther than the plans originally proposed by the Governor. If the gap was $80 million before the 1985-86 year for all sectors of higher education ($27.5 million for state colleges and universities), it was only closed by some 20% by the actions taken for that year. Major responsibility for setting tuition and fees rests with institutions. But tuition levels are also dependent upon adequacy of appropriations and model or formula incentives to hold tuition increases down. The State has an additional responsibility to further target funds for providing access through increased financial aid funding, and through recognition of institutional differences in elasticity of demand for services (thus a corresponding ability to raise tuition at different rates).

Strategy: Immediately upon return from recess in the fall, the House Appropriations Committee should take up the bills to implement the House Democratic Plan for Educational Opportunity, with a goal of final passage no later than December, 1985. In the 1986-87 budget, efforts should be renewed to increase

financial aid funding as a means to improve access. It would be an appropriate election-year issue as it should not produce any enemies and combines both good policies and good politics.

In addition, continued funding increases to the institutions should be provided with a strong message to hold the line on tuition increases - that is, no more than the rate of inflation. Complete freezes, while politically popular, fail to take into account differences in elasticity of demand among institutions and levels of students (that is, frozen tuition for undergraduates usually means increased tuition for graduates, and potential denial of opportunity).

Cost Estimate: Estimated increase $15 - 20 million per year for five years.

6. Economic Development. Michigan should set goals for economic development activities for the entire higher education community, including community colleges, state colleges and universities, major research universities, and independent colleges and universities. Such goals should be primarily funded as special purpose funds, however the model should incorporate recognition of research and public service activities within the appropriations base.

Comment: The cyclical nature of Michigan's economy is such that drastic solutions are needed. Each sector of postsecondary education can play a significant, though different, role in assisting economic diversification efforts. Many such efforts are already effective; more should be encouraged and funded.

Strategy: The almost disastrous effort to create a Research Excellence Fund can be compared with the extremely successful efforts to create a Job Training and Retraining Investment Fund in the community colleges. Clearly, all

institutions should have an opportunity to have a piece of the action, but should do so within the realm of their roles and missions. The House should assess the proposal by the State of Ohio for a five point plan for funding program excellence, including funding for research, a technology transfer network, a job training program, a job training fund, and quality improvement in instruction. The Ohio program has the distinct advantage of permitting all institutions to have a share of the action, but to have one that is appropriate to role and mission and needs. The House should begin planning for such an approach in the fall of 1985 and be prepared to announce it following the Governor's budget announcement in February 1986.

Cost Estimate: Approximately $45 million, an increase of $14 million over 1985-86 appropriated levels.

Conclusion

Michigan has what is considered to be one of the best systems of higher education in the nation. It must be protected, but at the same time, state goals must be met. The six point plan outlined above is a brief overview of the most crucial issues and a means of arriving at workable solutions. The assessment is an effort to combine good politics with good policy. Members of the Legislature should seize the initiative for promoting changes for higher education in Michigan, specifically through enacting the recommendations outlined above.

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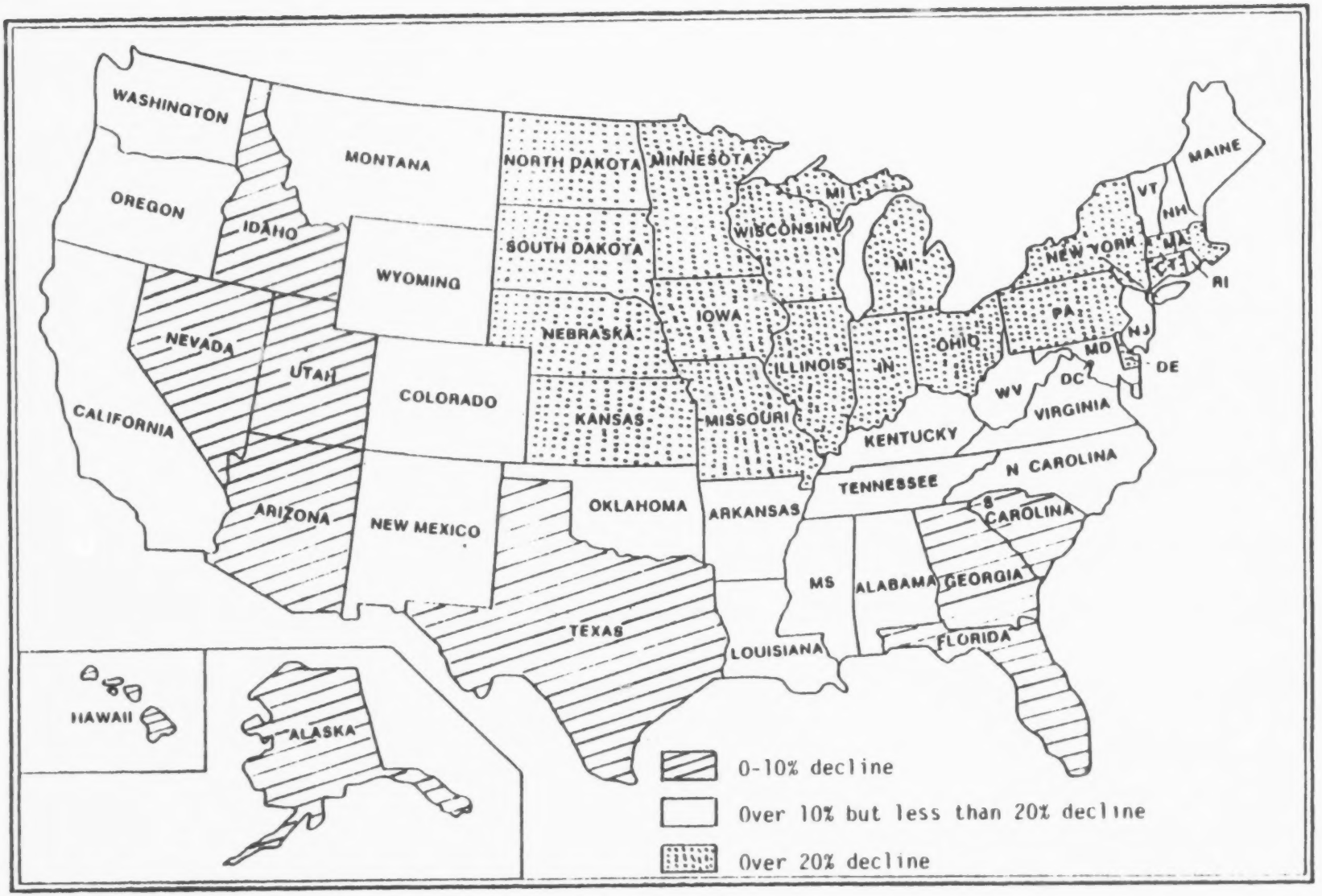
APPENDIX A

FIGURE 1

DECLINE IN 15-24 YEAR OLDS, 1980-1990



Source: U.S. Bureau of the Census, Current Population Reports, Series P25, No. 796, Series III projections.

A P P E N D I X B

TABLE 2

The Influence of Governance Relationships on Financing, Budgeting, and Accountability

CHARACTERIZATION	STATE-AGENCY MODEL (1)	"CURRENT" MODEL (NEEDS NEW LABEL) STATE-CONTROLLED INSTITUTION (2)	STATE-AIDED INSTITUTION (3)	CORPORATE OR "FREE-MARKET" MODEL (4)
Financing	1. All funds received deposited in general fund and subject to appropriation control 2. Fees and charges prescribed by legislature 3. Financial responsibility for higher-education operations would be vested solely in state government	1. Operating fee collections deposited into state general fund 2. Tuition levels prescribed by legislature 3. Services and activity fees, auxiliary-enterprise revenues, etc. treated as "nonbudgeted" funds 4. State government is primarily responsible for financing higher-education operations	1. All funds raised by institution retained locally 2. Fees and charges established by institutional governing boards 3. Only state general funds subject to state appropriation 4. Financial responsibility is shared by state and institution	1. Institutions have total control over all funds 2. State appropriations made to third-party state agency for purposes of contracting for services and enrollment opportunities 3. Ultimate financial responsibility vested in corporate institutions
Budgeting	1. The budget request would reflect a spending plan 2. Specific work-load factors would serve as basis for level of institutional request 3. Relative efficiency would be a major criterion 4. Legislature would approve spending level for various programs, major activities, and objects of expenditure within programs and activities. Adherence would be expected.	1. Variety of formulas and incremental bases may be employed 2. Detailed budget requests are prepared and submitted by institution, although major funding decisions are based on activity levels, base budgets, or other broad factors 3. Funding bases tend to be perceived as spending plans rather than funding vehicles	1. State support based on a general allocation formula—e.g., $/FTE resident student 2. Appropriation is on a lump-sum basis	1. Contract amounts determined through negotiation or external indices 2. Basic state-level budget decision would be number of spaces or levels of services to be "purchased"
Accountability	1. Accountability would focus on process considerations—adherence to spending plans, personal policies, etc.—and relatively little attention would be given to effectiveness of services provided	1. Major focus of oversight tends to be on process considerations with relatively little attention being given to effectiveness of services provided	1. Financial records must be auditable 2. Accountability reporting established as a parallel process and tends to focus more on effectiveness	1. Financial records must be auditable 2. Accountability provisions specified in contract that specifies meaning of "satisfactory performance

[SOURCE: Denis J. Curry, Norman M. Fischer, and Tom Jona, "State Policy Options for Financing Higher Education and Related Accountability Objectives," Finance Issue Paper, no. 2 (Washington: State of Washington Council for Postsecondary Education, Committee of the Whole, 18 February 1982).]

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APPENDIX C

TABLE 11

FORMULA-CALCULATION METHODS

USED BY STATES

Functional Areas	Formula Calculation Methods		
	Rate Per Base Factor	Base-Factor Position Ratio w/Salary Rates	Percentage of Base Factor
Instruction and Academic Support	17	10	9
Libraries	10	4	3
Student Services	6		
Institutional Support	11		6
Research and Public Service	2	2	8
Physical Plant Operation	14	3	6

TABLE 2

FORMULA CALCULATION OF FUNCTIONAL AREA BY STATES

State	Instruction and Academic Support	Libraries	Student Services	Institutional Support	Research and Public Service	Physical Plant Operation
Alabama	Total Budget	Total Budget	Total Budget	Total Budget	Total Budget	All except Utilities
Arkansas	Academic Salaries Other Salaries Operating Budget	Total Budget		Total Budget		Total Budget
Colorado	Academic Salaries	Salaries Collections				All except Utilities
Florida	Academic Salaries Advising Salaries Administration Salaries Supporting Salaries Operating Budget	Collections			Research Salaries Public Service Salaries	
Georgia	Academic Salaries Supporting Salaries Operating Budget	Total Budget			Public Service Budget Only	Total Budget
Kansas	Instructional Budget Academic Support Budget	Total Budget	Total Budget	Total Budget	Research Budget	Maintenance Security Administration
Kentucky	Academic Salaries Academic Support Budget	Total Budget	Total Budget	Total Budget	Research Budget	Maintenance and Custodial
Louisiana	Total Budget					
Mississippi	Total Budget	Total Budget	Total Budget	Total Budget	Research Budget	Total Budget

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TABLE 2 (continued)

State	Instruction and Academic Support	Libraries	Student Services	Institutional Support	Research and Public Service	Physical Plant Operation
Missouri	Total Budget	Total Budget		Total Budget		All except Utilities
Montana	Academic Salaries Operating Budget Equipment Academic Support	Total Budget	Total Budget	Total Budget	Public Service Budget	
New Jersey	Academic Salaries Academic Administration Operating Budget			Total Budget		Custodial Maintenance Grounds Administration Security
Ohio	Total Budget		Total Budget	Total Budget		Total Budget
Oklahoma	Total Budget	Total Budget	Total Budget	Total Budget	Research Budget Public Service Budget	Total Budget
Pennsylvania	Instructional Budget Academic Support Budget		Total Budget	Total Budget		Total Budget
South Carolina	Academic Salaries Operating Budget Academic Support Budget	Total Budget	Total Budget	Total Budget	Research Budget	Administration Maintenance Custodial Grounds
Tennessee	Instruction Budget Academic Support	Total Budget	Total Budget	Total Budget	Research Budget	All except Utilities

Table 2 (Continued)

State	Instruction and Academic Support	Libraries	Student Services	Institutional Support	Research and Public Service	Physical Plant Operation
Texas	Academic Salaries Academic Administration Operating Budget	Total Budget	Total Budget	Total Budget	Research Budget	Administration Maintenance Custodial Grounds
Washington	Academic Salaries Operating Budget	Salaries Operating Budget Collections	Total Budget			Maintenance Custodial Salaries Custodial Supplies Grounds

Table 3

Formula Methods for Developing Requests for Instruction and Academic Support

State	Line Item	Base Factors	Formula Factors	Method of Calculation	Differentiation		
					Academic Areas	Instructional Levels	Institution
Alabama	Instructional Budget	Projected Student Credit Hours	Credit Hour Complexity Indexes and Rates per Credit Hour	Total Weighted Student Credit Hours Times Given Rates	15	3	Separate Rates for Universities and Community Colleges
	Academic Support	Instructional Budget	Percentage	A Percentage of the Base Factor			
Arkansas	Faculty Salaries	Projected Student Credit Hours	Credit Hour-Faculty Ratios and Salary Rates	Faculty FTE Positions Times Given Salary Rates		6	
	Departmental Operating Budgets and Instructional Administration	Projected Student Credit Hours	Rates Per Credit Hour	Credit Hours Times Rates Per Credit Hour by Level of Instruction		5	
Colorado	Faculty Salaries	Projected FTE Students	Student-Faculty Ratios	Faculty FTE Positions Times Average Salary Rates Per Institution	39	4	Separate Salary Rates for each Institution
Florida	Teaching Salaries	Projected Student Credit Hours	Student-Faculty Ratios and Salary Rate	Teaching FTE Positions Times Statewide Average Salary Rate		4	
	Academic Advisor Salaries	Projected FTE Students	Student-Advisor Ratios and Salary Rate	Advisor FTE Positions Times Statewide Average Salary Rate			
	Academic Administration Salaries	Academic FTE Positions	Academic-Administrative Ratio and Salary Rate	Administrative FTE Positions Times Statewide Average Salary Rate			
	Instructional Supporting Salaries	Academic FTE Positions	Academic-Clerical Ratio and Salary Rate	Clerical FTE Positions Times Statewide Average Average Salary Rate			
	Departmental Operating Budget	Academic FTE Positions	Rate Per FTE Position	Academic FTE Positions Times a Given Salary Rate			

Formula Methods for Developing

State	Line Item	Base Factors	Formula
Georgia	Teaching Salaries	Projected Student Credit Hours	Credit H Faculty and Sala
	Instructional Supporting Salaries	FTE Faculty Positions	Faculty- Ratio a Rate
	Departmental Operating Budget	FTE Faculty Positions	Rate per Positio
Kansas	Instructional Budget	Actual Student Credit Hours	Rates Pe Credit H
	Academic Support	Instructional Budget	Percenta
Kentucky	Faculty Salaries	Actual FTE Students	Student- Ratios a Salary R
	Academic Support Budget	Faculty Salaries	Percenta
Louisiana	Instruction and Academic Support	Actual Student Credit Hours	Rates Pe Credit H
Mississippi	Instructional Budget	Projected Student Credit Hours	Rates Pe Credit H
Missouri	Instructional Budget	Actual Student Credit Hours	Rates Pe Credit H

ntinued)

for Instruction and Academic Support

Method of Calculation	Differentiation		
	Academic Areas	Instructional Levels	Institution
Teaching FTE Positions Times a Given Salary Rate		3	
Supporting FTE Positions Times a Given Salary Rate			
Faculty FTE Positions Times Given Rate			
Student Credit Hours Times Rates Given for Each Level in Each Academic Area	24	4	Separate Rate for four types of Instructions
A Percentage of the Base Factor			Separate Percentages for Each Institution
Faculty FTE Positions Times Given Salary Rates	20	4	Separate Ratios for Community Colleges
A Percentage of the Base Factor			
Student Credit Hours Times Rates Given for Each Level by Cost Area	9	5	
Student Credit Hours Times Rates Given for Each Level and Discipline	26	3	Separate Rates for three Types of Institutions
Student Credit Hours Times Rates Given for Each Level and Academic Area	5	2	Separate Allowance for Small Schools

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Table 3 (Continued)

Formula Methods for Developing Requests for Instruction and Academic Support

State	Line Item	Base Factors	Formula Factors	Method of Calculation	Differentiation		
					Academic Areas	Instructional Levels	Institution
Montana	Faculty Salaries	Three Year FTE Student Average	Student-Faculty Ratios and Salary Rates	Faculty FTE Positions Times Given Salary Rates			Separate Ratios and Rates for Each Institution
	Departmental Operating Budgets	Base Year Budget and Three-Year FTE Enrollment Average	Percentage	Base Year Expenditure Plus Adjustment for Enrollment Change			
	Equipment	Three-Year FTE Student Average	Rate Per FTE Student	FTE Students Times Given Rate			Separate Rates for Each Institution
New Jersey	Instructional Salaries	Projected FTE Students	Student-Faculty Ratios and Salary Rates	Faculty FTE Positions Times Given Salary Rates	19	3	Separate Ratios and Rates for Rutgers
	Instructional Administration	Instructional Salaries	Percentage	A Percentage of Base Factor			Separate Percentage for Rutgers
	All Other Instructional Budgets	Instructional Salaries	Percentage	A Percentage of the Base Factor			Separate Percentage for Rutgers
Ohio	Instructional Budget	Projected FTE Students	Rates per FTE Student	FTE Students by Program Times Given Rates	6	3	
	Academic Support	Projected FTE Students	Rates Per FTE Student	FTE Students by Program Times Given Rates	6	3	
Oklahoma	Instructional Budget and Academic Support Library, Student Services, Institutional Support, Physical Plant Operation	Projected FTE Students	Rates Per FTE Student	FTE Students Times Rates Given for Each Level and Instructional Program		3	Separate Rates for Four Types of Institutions

Table 3 (Continued)

Formula Methods for Developing Requests for Instruction and Academic Support

State	Line Item	Base Factors	Formula Factors	Method of Calculation	Differentiation		
					Academic Areas	Instructional Levels	Institution
Pennsylvania	Instructional Budget	Projected Student Credit Hours	Credit Hour-Faculty Ratios and Rates per Position	Faculty FTE Positions Times Given Rates		Credit Hour-Faculty Ratios Determined by Regression Technique with Academic Area and Instructional Level Differentiation	
	Academic Support	Projected Student Credit Hours	Rates per Credit Hour	Student Credit Hours Times Given Rates			
South Carolina	Instructional Salaries	Actual Fall Student Credit Hours	Credit Hour-Faculty Ratios and Salary Rates	Faculty FTE Positions by Discipline Times Given Rates	34	3	Separate Salary Rates by Type of Institution
	Other Instructional Costs	Instructional Salaries by Level and Academic Area	Percentage	Instructional Salaries by Level and Academic Area Times Given Percentages	34	3	Separate Percentages by Type of Institution
	Academic Support Budget	Instructional Budget	Percentage	A Percentage of the Base Factor			
Tennessee	Instructional Budget	Actual Student Credit Hours	Rates Per Credit Hour	Student Credit Hours Times Rates Given for Each Level and Academic Area	28	4	
	Academic Support Budget	Instructional Budget	Percentage	A Percentage of the Base Factor			Separate Percentages by Type of Institution
Texas	Teaching Salaries	Actual Student Credit Hours	Rates Per Credit Hour	Student Credit Hours by Level of Instruction and Academic Area Times Given Rates	16	3	
	Departmental Operating Budgets	Actual Student Credit Hours	Rates Per Credit Hour	Student Credit Hours by Level of Instruction Times Given Rates		3	
	Academic Administration	Teaching Salaries	Percentage	A Percentage of the Base Base Factor			Percentage Varied by Institution Due to Complexity Factor Adjustment

Table 3 (Continued)

Formula Methods for Developing Requests for Instruction and Academic Support

State	Line Item	Base Factors	Formula Factors	Method of Calculation	Differentiation Academic Areas	Differentiation Instructional Levels	Institution
Washington	Faculty Salaries	Projected Student Credit Hours and Salary Rates	Credit Hour-Faculty Ratios and Percent of Formula	Faculty FTE Positions Times Percent of Formula Times Salary Rates	4	4	Separate Rates Per Institution
	Departmental Operating Budgets	Faculty FTE Positions	Rate Per FTE Position	Faculty FTE Positions Times Given Rate			